

TWO NEW AMERICAN PALMS

HAROLD E. MOORE, JR.

I. A SECOND SPECIES OF ARISTEYERA

Shortly after the publication of the new genus and species *Aristeyera spicata* in this journal (46: 5. 1966), Dr. Julian A. Steyermark sent specimens for study which proved to represent a second species, here described as *Aristeyera ramosa*. Since there are major differences between the new *A. ramosa* and *A. spicata*, as listed below, an emendation of the generic circumscription is provided. The branched inflorescence is subtended by three bracts, a most unusual feature in a tribe where only two principal bracts have normally been known heretofore. These characteristics of the inflorescence suggest a less specialized species than *A. spicata*. The smaller number of stamens in the staminate flower and of staminodes in the pistillate flower suggests the possibility that more than six stamens may be a derived rather than a primitive state in the Geonomeae, a possibility requiring further anatomical study before any conclusion can be drawn.

Aristeyera H. E. Moore, char. amplif.

Solitary, slender, unarmed, monoecious protandrous palms sometimes producing short lateral vegetative branches with small leaves and adventitious roots at upper nodes. Leaves normally undivided except for the bifid apex, pinnately nerved; sheath short, rupturing opposite the petiole. Inflorescences interfoliar, erect, subtended by 2 or 3 closely sheathing bracts inserted at or near the base of the peduncle, the lower bract ancipitous, the upper 1 or 2 longer, with rounded margins, opening obliquely at the apex; peduncle elongate, terminating in one or in several subfasciculate spike-like flowering axes, the flowers borne in triads of 2 lateral staminate and a central pistillate (which sometimes aborts in apical triads) sunken in pits, these covered with a bract in bud and arranged in 6–8 vertical series. Flowers about $\frac{1}{3}$ exserted at anthesis: staminate flowers with 3 glumaceous sepals, these distinct and more or less keeled above a short attachment to the receptacle, imbricate at least basally in bud; petals 3, adnate basally to the receptacle, connate above (sometimes unequally so) for $\frac{1}{3}$ – $\frac{3}{4}$ their length in a soft tube, the free, slightly asymmetric lobes deltoid, glumaceous, valvate above briefly imbricate bases; stamens (11–) 12–24, exserted at anthesis, the filaments adnate basally to the receptacle, then expanded and connate in a tube surrounding a fleshy, shallowly and acutely, often irregularly 3-lobed pistillode, the free portions of the filaments only slightly longer than the connate portions, erect, anthers inflexed in bud, thecae separate, longitudinally dehiscent, terminal on arms

of a bifid connective, arms of the connective and thecae becoming erect or nearly so at anthesis: pistillate flowers with 3 glumaceous distinct sepals imbricate in bud; petals 3, connate basally in a soft fleshy tube with deltoid glumaceous lobes shortly imbricate basally, valvate above in bud, exserted and spreading at anthesis; staminodes (5-6-)7-18, fleshy, connate basally and adnate to the corolla-tube, then free and subulate or linear, exserted and spreading at anthesis; pistil trilocular, triovulate, the ovary with 3 rounded lobes; styles terminal, elongate, loosely united, exserted and more or less thickened above the throat of the staminodial tube at anthesis; stigmas 3, recurved, at anthesis; ovule hemitropous, axile, pendulous, attached near the top of the locule, only one normally maturing. Fruit ellipsoid-ovoid, slightly compressed laterally and slightly keeled apically when dry, the residual stigmas and abortive carpels basal; exocarp smooth; mesocarp rather dry, with longitudinal fibers closely placed around the endocarp, this thin, crustaceous, shining, not adherent to the seed; seed ellipsoid to obovoid and slightly compressed laterally; hilum small, excentrically basal; raphe encircling the seed from hilum to excentrically basal embryo, somewhat impressed and unbranched to furcate or with a few parallel branches; endosperm homogeneous.

Aristeyera ramosa H. E. Moore, sp. nov.

FIGS. 1 and 2

Ab *Aristeyera spicata* inflorescentia ramosa bracteis 3 subtenta, rachillis 4-6 subfasciculatis glabris alveolas floriferas in seriebus 6-8 verticalibus gerentibus, florum masculorum staminibus (11-)12, florum femineorum staminodiis (5-6-)7-9 subulatis differt.

Stems solitary, to 3 m. high, 3-8 cm. in diam., often producing short lateral vegetative branches with small leaves and adventitious roots at nodes above. Leaves rigid, subcoriaceous, paler green below (Steyermark); sheath short, ca. 11-17 cm. long at margin of petiole, 6-17 cm. long and frayed into irregular lobes opposite petiole, fibrous, densely brown-tomentose inside and outside; petiole 33-43 cm. long, brown-tomentose below, at least when young, becoming glabrous; blade cuneate in outline, undivided except at bifid apex, 58.5-66.5 cm. long along the rachis, 21-27 cm. wide at apex of rachis, 31 cm. or more long along inner margin of terminal lobes, the rachis glabrous above, more or less brown-tomentose below, primary nerves 34-38 on each side, with scurfy small brown or rusty appressed scales on these and the secondary and tertiary nerves below. Inflorescence erect in flower, becoming pendulous in fruit, subtended by 3 bracts, the lowermost short, 15-20 cm. long, ancipitous, brown-tomentose, becoming glabrous, the middle one inserted close to the lowest or to ca. 8.5 cm. above it, 25-49 cm. long, opening obliquely at apex, densely brown-tomentose, the uppermost similar to the middle bract and exceeding it by 11-18 cm.; peduncle densely brown- or rusty-tomentose, 46-178 cm. long; rachis very short, 1.3-2.5 cm. long; rachillae 4-6, subfasciculate, glabrous, 18-20 cm. long, 6-8 mm. in diam., with flower pits in 6-8 vertical series, becoming maroon-rose or wine-colored in fruit. Staminate flowers at anthesis ca. 6-6.5 mm. long; sepals 5 mm. long; corolla-tube ca. 3 mm.

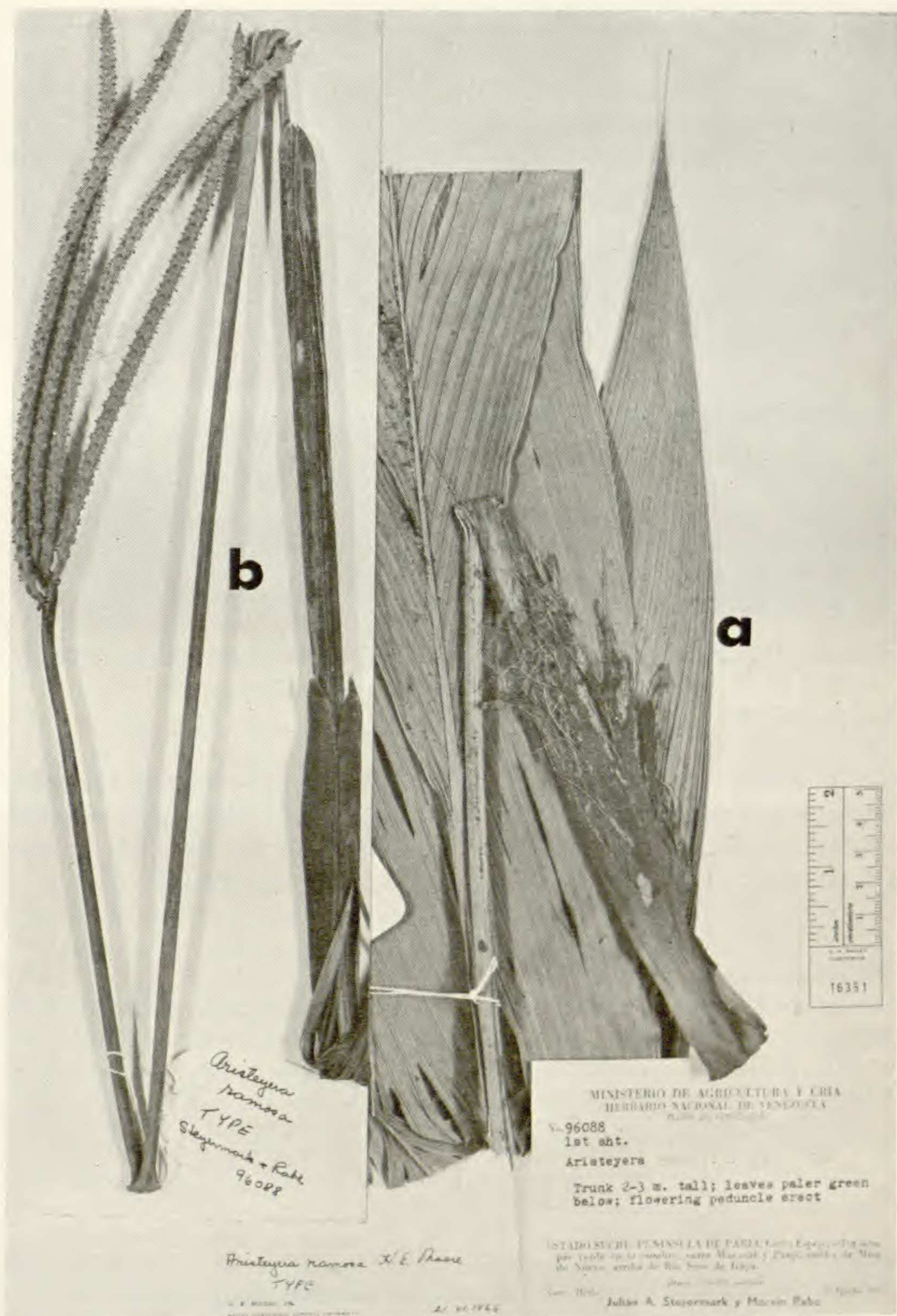


FIG. 1. *Aristeyera ramosa*. a, leaf; b, inflorescence.

long, corolla-lobes ca. 3.4 mm. long; stamens (11-)12; pistillate flowers at anthesis (from preserved material) ca. 7 mm. long; sepals 5 mm. long; corolla-tube ca. 4 mm. long, corolla-lobes 2.6 mm. long, acute; staminodes (5-6-)7-9, connate in a fleshy tube 4 mm. long and adnate to the corolla-



FIG. 2. *Aristeyera ramosa*. c, habit, from kodachrome by J. A. Steyermark; d, portion of inflorescence with pistillate flowers at anthesis, from kodachrome by J. A. Steyermark.

tube, then free, ca. 3.6 mm. long, fleshy, subulate, spreading at anthesis; style exserted and expanded above throat of staminodial tube; stigmas recurved. Fruit (not fully mature) ellipsoid, 15–16 mm. long, ca. 5 mm. in diam., dark purple-red.

VERNACULAR NAME: *anare*

Venezuela. ESTADO SUCRE: Península de Paria, Cerro de humo, laderas pendientes de bosque nublado virgen que miran al norte, a lo largo de las cabeceras de uno de los afluentes del Río Santa Isabel, arriba de Sipara, oeste de Santa Isabel, alrededor de 14 kms. al norte del pueblo de Río Grande Arriba, arriba de Boca de Cumana y Punto Siparo, noroeste de Irapa, alt. 1060 m., 1 Mar. 1966, *Julian A. Steyermark* 94803 (BH); Cerro Espejo, selva siempre verde en la cumbre, entre Manacal y Pauji, arriba de Mundo Nuevo, arriba de Río Seco de Irapa, alt. 750–850 m., 6 Aug. 1966, *Julian A. Steyermark & Marvin Rabe* 96088 (BH, holotype).

The epithet for this second species of *Aristeyera* is used with reference to both the branched inflorescence and the unusual short lateral branches often produced along the upper portion of the stem. It is perhaps worth noting that in the two collections available, the flower pits are arranged in six vertical series in the three inflorescences of the type while in the single fruiting inflorescence of *Steyermark* 94803 they are in eight vertical series on one axis, in six on the remaining five axes.

It may be useful to tabulate the diverging characteristics of the two species in the following way:

Stems not producing lateral branches	Stems often producing short lateral vegetative branches along the upper portion
Bracts subtending the inflorescence 2	Bracts subtending the inflorescence 3
Flowering axis simple, spike-like, densely ferrugineous-tomentose, with flower pits in 8 vertical series	Flowering axes 4-6, subfasciculate, glabrous, with flower pits in 6-8 vertical series
Staminate flowers with 21-24 stamens	Staminate flowers with (11-)12 stamens
Pistillate flowers with 15-18 staminodes, these linear, angled, and sometimes thickened apically	Pistillate flowers with (5-6-)7-9 staminodes, these subulate
Fruit 12-14 mm. long at maturity	Fruit 15-16 mm. long when still immature

II. A NEW SPECIES OF PHOLIDOSTACHYS FROM COLOMBIA

Several years ago, a description of a supposedly new palm was prepared and put aside pending the resolution of some generic problems in the tribe Geomeae of the subfamily Arecoideae. At the time, not understanding distinctions among those genera with six stamens and sagittate anthers, I had thought this to be a new *Calyptronoma*. In the interim, Mr. R. W. Read has provided preserved material of *Calyptronoma occidentalis* collected in Jamaica, calling my attention to the peculiar cap formed by the petals, and I have been able to study old pistillate flowers of *Pholidostachys pulchra*. On re-studying specimens of the new palm to make them available to the current monographer of the tribe, it is clear that the species does not belong in *Calyptronoma* but is referable to *Pholidostachys*.

At present, only two species, *P. pulchra* from Costa Rica and *P. Kalbreyeri* from Colombia, are assigned to the genus *Pholidostachys*. Each has the inflorescence composed of a single spike-like flowering axis terminating the peduncle and the two are probably to be regarded as synonymous. In the light of generic differences noted below, two other South American species now in *Calyptronoma* will be assigned to *Pholidostachys* (J. G. Wessels Boer, in correspondence). *Pholidostachys dactyloides* differs from *P. pulchra* and *P. Kalbreyeri* in having an inflorescence with several flowering axes. It differs from the other species assignable to the genus, each of which has a ramified inflorescence with an elongate rachis, in the few, subfasciculate rachillae borne on an extremely short rachis. It is these clustered, finger-like rachillae that suggest the epithet used.

An inexplicable error describing the staminodes of *Calyptronoma* as united in a solid receptacle, in a published key (Journal of the Arnold Arboretum 46: 3. 1966), also calls for rectification. I would, today, separate *Calyptronoma*, *Calyptrogyne*, and *Pholidostachys*, all of which have very similar staminate flowers, as follows:

1. Petals of the pistillate corolla very briefly connate in a tube about as high

as the ovary, the lobes distinct, glumaceous, persistent, not forming a circumscissile cap; staminodial tube gradually widened apically to 6 prominent fleshy lobes as long as or longer than the tube and spreading at anthesis; styles scarcely united except at the base, distinct and stout for most of their length, the stigmatic tips somewhat recurved. Costa Rica to Peru. *Pholidostachys*.

1. Petals of the pistillate corolla connate basally in a thin membranous tube for more than half their length, the lobes valvate and thicker, not separating but forming a circumscissile conic cap caducous at anthesis; staminodes connate in a slender tube and adnate to the corolla-tube basally, the upper portion exerted at anthesis, inflated, urceolate, with 6 very short and narrow essentially erect lobes, caducous; styles loosely united for most of their length, sometimes thickened toward the apex, becoming long-exserted after the terminal portion of the staminodial tube has fallen; stigmas recurved.
2. Upper bract of inflorescence inserted at or near the base of the peduncle, persistent or at length marcescent; inflorescence large, paniculately twice-branched; stems moderately stout, to 20 meters high or more. Greater Antilles. *Calyptronoma*.
2. Upper bract of inflorescence inserted at base of and enclosing the spike-like flowering axis in bud, caducous at anthesis or soon marcescent, leaving a ruff-like scar; stems short, seldom developed above ground. Mexico to Colombia. *Calyptrogyne*.

***Pholidostachys dactyloides* H. E. Moore, sp. nov.** FIGS. 3 and 4

Palma mediocris caudice solitario ad 10 m. alto, 8 cm. in diam., pinnis 4-9-nervatis, inflorescentiae rachidi brevissima, rachillis 5-6 tomentosis erectis subfasciculatis alveolas floriferas in seriebus 10 verticalibus gerentibus, fructu obovoideo 14-15 mm. longo, 10-12 mm. in diam., semine late ellipsoideo 9 mm. alto, 8 mm. in diam.

Stems solitary, to 10 m. high, 6.5-8 cm. in diam., grayish-brown. Leaves in a dense crown; sheath short, closed and swollen at the base, with red fibers; petiole 40-50 cm. long, narrow, shining, glabrous and slightly channelled above, rounded and densely ferrugineous-tomentose becoming glabrous below; blade 1.2-1.4 m. long, the pinnae 10-11 on each side of the rachis, this rounded and deciduous-ferrugineous-tomentose below, narrowly convex, elevated centrally with prominent flattish wing-like margins and glabrous above, at least basally; pinnae subopposite to alternate, inserted on the winged margin, all 4-6-9-nerved, with prominently and acutely keeled nerves above, glabrous except for deciduous red-brown elongate scurfy scales along the predominant elevated and truncate nerves below, these alternating with red-purple-margined impressed nerves corresponding to elevated nerves above, the surface densely and minutely pale-punctulate, lowermost pinnae ca. 50 cm. long, 4.5 cm. wide, pinnae from mid-leaf ca. 70-75 cm. long, 7-9-13 cm. wide, falcate-acuminate, apical pinnae ca. 45 cm. long, 7 cm. wide, 16 cm. along the rachis. Inflorescence interfoliar, subtended by two bracts, the lower ca. 33 cm. long, ancipitous, densely ferrugineous-tomentose, upper bract inserted 4-5.5 cm. above the lower, stouter, ferrugineous-tomentose, coarsely fibrous and

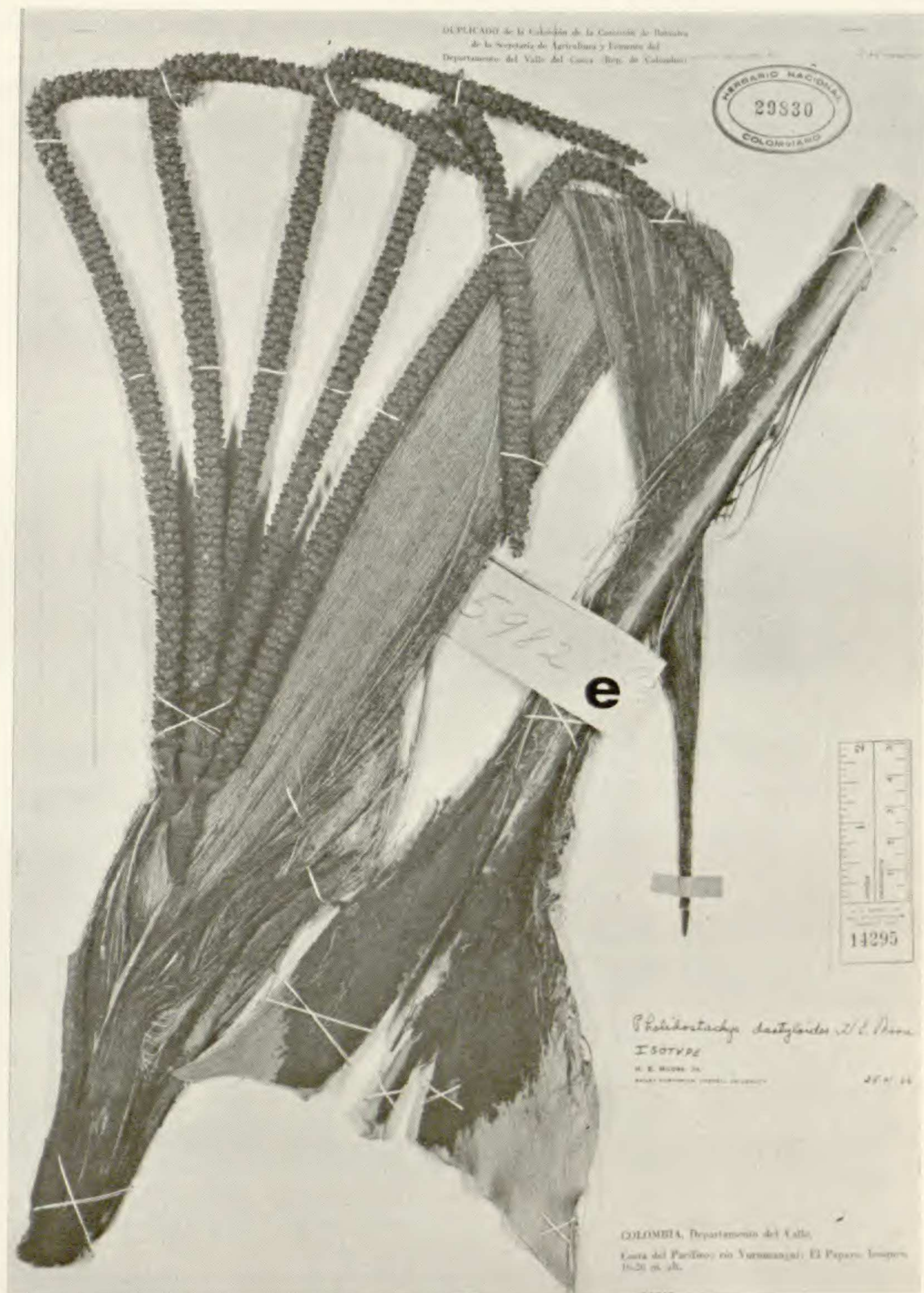


FIG. 3. *Pholidostachys dactyloides*. e, isotype (COL).

fraying in age, not ancipitous, 54–63 cm. long, splitting abaxially and then 4.5–6 cm. wide, attenuate at apex; peduncle 15–22 cm. long, dorso-ventrally compressed and elliptic in section, densely ferrugineous-tomentose, with several acute triangular bractlets to 2 cm. long toward the apex, terminating in a very short rachis and 5–6 erect subfasciculate similarly tomentose rachillae 26.5–33 (–40 in fruit) cm. long, ca. 1 cm. in diam., the pits in

10 vertical series, the lips entire, about as broad as long. Staminate flowers ca. 5.5 mm. long; sepals distinct, 4.5 mm. long, slightly keeled, rounded to subcucullate apically; petals very briefly connate and united with the connate stamen-filaments basally but distinct and valvate above; stamen-

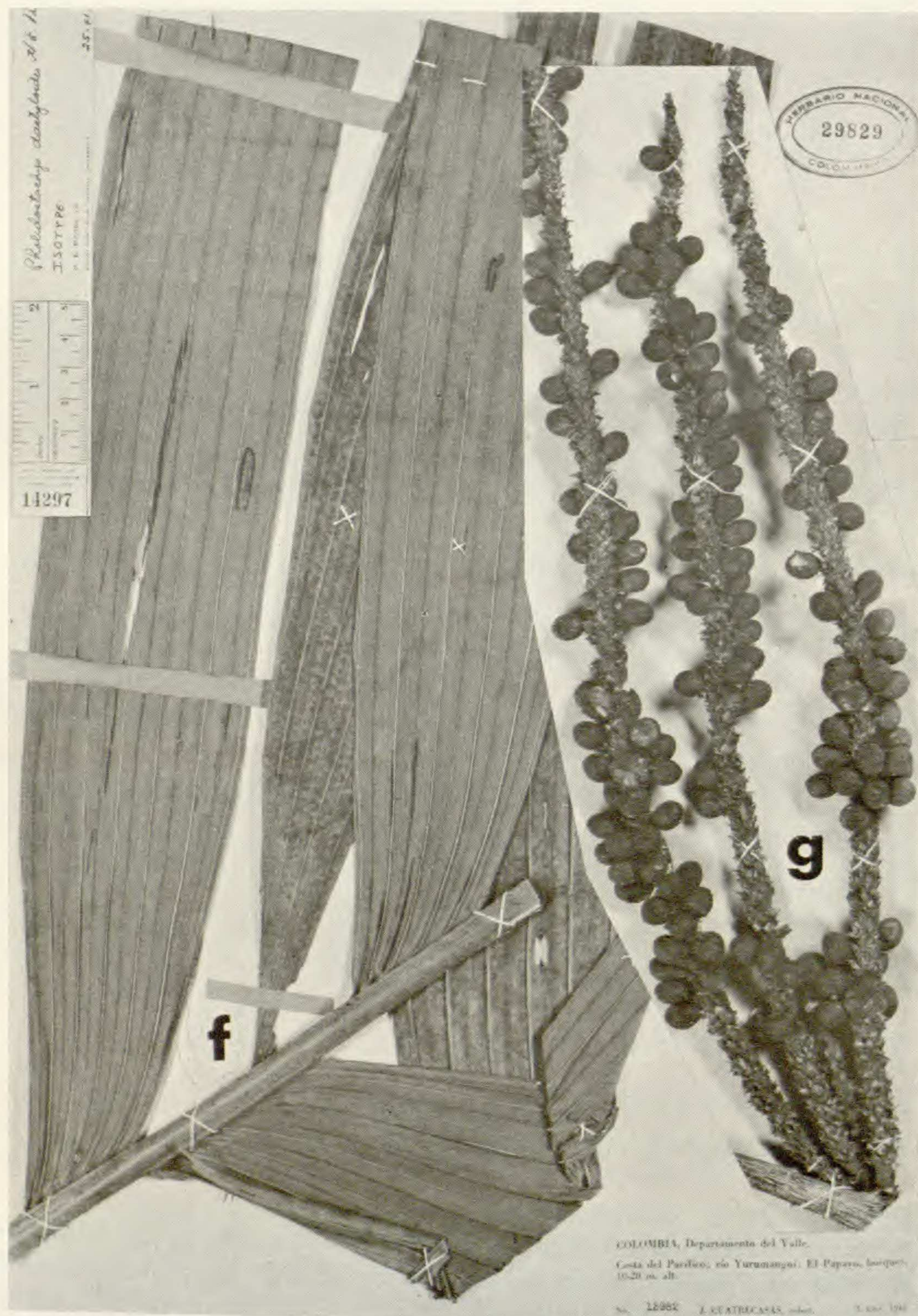


FIG. 4. *Pholidostachys dactyloides*. f, portion of leaf from isotype (COL); g, portion of infructescence from isotype (COL).

filaments united in a 3-angled solid fleshy obconic stipe, then distinct as 6 prominent narrowly triangular fleshy lobes ca. 1 mm. long tapered to very thin inflexed apices and sagittate anthers, these versatile and probably spreading at anthesis; pistillode short, subulate; pistillate flowers with distinct acutish keeled sepals ca. 4.5 mm. long; petals similar to the staminate but united basally with the staminodial tube for about 1.5 mm.; staminodes connate in a soft fleshy obconic tube with 6 fleshy lobes, these spreading at anthesis; pistil trilocular, triovulate, very deeply 3-lobed, the ovaries discrete except on the inner face; styles very briefly united basally, distinct and elongate above, with subclavate spreading exerted stigmas. Fruit black at maturity (17257), 14–15 mm. long, 10–12 mm. in diam., obovoid, the fibers of the mesocarp not prominent in dry mature fruit but very conspicuous in the dry immature fruit (15982); mesocarp with thick curved anastomosing fibers and an inner layer of slender fibers; endocarp thin, not adherent to the seed: seed broadly ellipsoid, ca. 9 mm. high, 8 mm. in diam., with raphe and chalaza forming a narrow continuous band from the subbasal point of attachment to the basal embryo; endosperm homogeneous.

Colombia. DEPARTAMENTO DEL VALLE: Costa del Pacifico, río Yurumanguí, El Papayo, bosques, 10–20 m. alt., Feb. 5, 1944, *J. Cuatrecasas* 15982 (BH, type; COL, F, isotypes); río Cajambre, Barco, 5–80 m. alt., Apr. 21–30, 1944, *J. Cuatrecasas* 17257 (COL, F).

L. H. BAILEY HORTORIUM
CORNELL UNIVERSITY
ITHACA, NEW YORK 14850